Claims

1. Use of one inhibitor or of several inhibitors of alanyl aminopeptidases and/or of enzymes having a similar substrate specificity for the induction of the production of TGF-β1 and of the expression of TGF-β1 in and/or on Treg cells.

2. The use according to claim 1, wherein the one inhibitor or the several inhibitors of alanyl aminopeptidases and/or of enzymes having a similar substrate specificity is/are at least one member selected from the group consisting of actinonin, leuhistin, phebestin, amastatin, bestatin, probestin, arphamenin, MR 387, β-amino thiols, α-amino phosphinic acids and their esters and their salts, α-amino phosphonates, α-amino boronic acids, α-amino aldehydes, hydroxamates of α-amino acids, N-phenyl phthalimides, N-phenyl homophthalimides, α-ketoamides, thalidomide and its derivatives.

3. The use according to claim 2, wherein, as the one inhibitor or the several inhibitors, α-ketoamides, preferably 3-amino-2-oxo-4-phenylbutanoic acid amides, α-amino phosphinic acids, preferably D-Phe-γ[PO(OH)-CH_2]-Phe-Phe, N-phenyl homophthalimides, preferably PAQ-22, α-amino phosphonates, preferably RB3014 and/or phebestin, particularly preferably PAQ-22, RB3014 and/or phebestin is/are used.

4. The use according to any of the claims 1 to 3, wherein cytosolic alanyl aminopeptidase serves as the enzyme having a similar substrate specificity.

5. The use according to claim 4, wherein PAQ-22 is used as the one inhibitor or wherein the several inhibitors comprise PAQ-22.

6. Use of one inhibitor or of several inhibitors of alanyl aminopeptidases and or of enzymes having a similar substrate specificity for preventing and/or treating autoimmune diseases.

7. The use according to claim 6 for preventing and/or treating rheumatoid arthritis, Lupus Erythematodes, multiple sclerosis, IDDM, Morbus Crohn, Colitis Ulcerosa, psoriasis, neurodermatosis, glomerulonephritis, interstitial nephritis, vasculitis, autoimmune diseases of the thyroid gland, autoimmune-hemolytic anemia or other chronic diseases having an inflammatory genesis as, for example, arteriosclerosis.

8. The use according to claims 6 or 7 for preventing and/or treating multiple sclerosis or arteriosclerosis.

9. Use of one inhibitor or of several inhibitors of alanyl aminopeptidases and or of enzymes having a similar substrate specificity for preventing and/or treating allergies of the type I (according to Gell and Coombs), hay fever or allergies of the type II, III or IV.

10. The use according to claim 9 for preventing and/or treating bronchial asthma or hay fever as allergies of the type I (according to Gell and Coombs) and/or contact allergies as allergies of the types II, III or IV.

11. Use of one inhibitor or of several inhibitors of alanyl aminopeptidases and or of enzymes having a similar substrate specificity for suppressing graft rejection reactions.

12. The use according to claim 11 in transplantations of kidneys or bone marrow.

13. The use according to any of the claims 6 to 12, wherein the one inhibitor or the several inhibitors of alanyl aminopeptidases and/or of enzymes having a similar substrate specificity is/are at least one member selected from the group consisting of actinonin, leuhistin, phebestin, amastatin, bestatin, probestin, arphamenin, MR 387, β-amino thiols, α-amino phosphinic acids and their esters and their salts, α-amino phosphonates, α-amino boronic acids, α-amino aldehydes, hydroxamates of α-amino acids, N-phenyl phthalimides, N-phenyl homophthalimides, α-ketoamides, thalidomide and its derivatives.

14. The use according to claim 13, wherein, as the one inhibitor or the several inhibitors, α-ketoamides, preferably 3-amino-2-oxo-4-phenylbutanoic acid amides, α-amino phosphinic acids, preferably D-Phe-γ[PO(OH)-CH_2]-Phe-Phe, N-phenyl homophthalimides, preferably PAQ-22, α-amino phosphonates, preferably RB3014 and/or phebestin, particularly preferably PAQ-22, RB3014 and/or phebestin is/are used.

15. The use according to any of the claims 6 to 14, wherein cytosolic alanyl aminopeptidase serves as the enzyme having a similar substrate specificity.

16. The use according to claim 15, wherein PAQ-22 is used as the one inhibitor or wherein the several inhibitors comprise PAQ-22.

17. The use according to any of the claims 1 to 16, wherein peptide fragments of pathogenic autoantigens or synthetic analogs and/or specific antigenic components of pathogenic microorganisms are used in addition.

18. The use of claim 17, wherein MBP (myelin basic protein), MOG (myelin oligo-dendrocyte glycoprotein), MAG (myelin-associated glycoprotein) and/or PLP (proteolipid protein) are used as peptide fragments of pathogenic autoantigens.

19. The use according to claim 17 or claim 18, wherein sheath proteins or membrane glycolipide complexes are used as specific antigenic components of pathogenic microorganisms.

20. Use of one inhibitor or of several inhibitors of alanyl aminopeptidases and/or of enzymes having a similar substrate specificity for the preparation of a medicament or of a pharmaceutical preparation for the induction of the production of TGF-β1 and of the expression of TGF-β1 in and/or on Treg cells.

21. The use according to claim 20, wherein the one inhibitor or the several inhibitors of alanyl aminopeptidases and/or of enzymes having a similar substrate specificity is/are at least one member selected from the group consisting of actinonin, leuhistin, phebestin, amastatin, bestatin, probestin, arphamenin, MR 387, β-amino thiols, α-amino phosphinic acids and their esters and their salts, α-amino phosphonates, α-amino boronic acids, α-amino aldehydes, hydroxamates of α-amino acids, N-phenyl phthalimides, N-phenyl homophthalimides, α-ketoamides, thalidomide and its derivatives.

22. The use according to claim 21, wherein, as the one inhibitor or the several inhibitors, α-ketoamides, preferably 3-amino-2-oxo-4-phenylbutanoic acid amides, α-amino phosphinic acids, preferably D-Phe-γ[PO(OH)-CH_2]-Phe-Phe, N-phenyl homophthalimides, preferably PAQ-22, α-amino phosphonates, preferably RB3014 and/or phebestin, particularly preferably PAQ-22, RB3014 and/or phebestin is/are used.

23. The use according to any of the claims 20 to 22, wherein cytosolic alanyl aminopeptidase serves as the enzyme having a similar substrate specificity.

24. The use according to claim 23, wherein PAQ-22 is used as the one inhibitor or wherein the several inhibitors comprise PAQ-22.

25. Use of one inhibitor or of several inhibitors of alanyl aminopeptidases and or of enzymes having a similar substrate specificity for the preparation of a medicament or of a pharmaceutical preparation for preventing and/or treating autoimmune diseases.

26. The use according to claim 25 for preventing and/or treating rheumatoid arthritis, Lupus Erythematodes, multiple sclerosis, IDDM, Morbus Crohn, Colitis Ulcerosa, psoriasis, neurodermatosis, glomerulonephritis, interstitial nephritis, vasculitis, autoimmune diseases of the thyroid gland, autoimmune-hemolytic anemia or other chronic diseases having an inflammatory genesis as, for example, arteriosclerosis.

27. The use according to claim 25 or claim 26 for preventing and/or treating multiple sclerosis or arteriosclerosis.

28. Use of one inhibitor or of several inhibitors of alanyl aminopeptidases and/or of enzymes having a similar substrate specificity for the preparation of a medicament or of a pharmaceutical composition for preventing and/or treating allergies of the type I (according to Gell and Coombs), hay fever or allergies of the type II, III or IV.

29. The use according to claim 28 for preventing and/or treating bronchial asthma or hay fever as allergies of the type I (according to Gell and Coombs) and/or contact allergies as allergies of the types II, III or IV.

30. Use of one inhibitor or of several inhibitors of alanyl aminopeptidases and or of enzymes having a similar substrate specificity for the preparation of a medicament or of a pharmaceutical preparation for suppressing graft rejection reactions.

31. The use according to claim 30 for transplantations of kidneys or bone marrow.

32. The use according to any of the claims 25 to 31, wherein the one inhibitor or the several inhibitors of alanyl aminopeptidases and/or of enzymes having a similar substrate specificity is/are at least one member selected from the group consisting of actinonin, leuhistin, phebestin, amastatin, bestatin, probestin, arphamenin, MR 387, β-amino thiols, α-amino phosphinic acids and their esters and their salts, α-amino phosphonates, α-amino boronic acids, α-amino aldehydes, hydroxamates of α-amino acids, N-phenyl phthalimides, N-phenyl homophthalimides, α-ketoamides, thalidomide and its derivatives.

33. The use according to claim 32, wherein, as the one inhibitor or the several inhibitors, α-ketoamides, preferably 3-amino-2-oxo-4-phenylbutanoic acid amides, α-amino phosphinic acids, preferably D-Phe-γ[PO(OH)-CH_2]-Phe-Phe, N-phenyl homophthalimides, preferably PAQ-22, α-amino phosphonates, preferably RB3014 and/or phebestin, particularly preferably PAQ-22, RB3014 and/or phebestin is/are used.

34. The use according to any of the claims 25 to 33, wherein cytosolic alanyl aminopeptidase serves as the enzyme having a similar substrate specificity.

35. The use according to claim 34, wherein PAQ-22 is used as the one inhibitor or wherein the several inhibitors comprise PAQ-22.

36. The use according to any of the claims 20 to 35, wherein peptide fragments of pathogenic autoantigens or synthetic analogs and/or specific antigenic components of pathogenic microorganisms are used in addition.

37. The use according to claim 36, wherein MBP (myelin basic protein), MOG (myelin oligo-dendrocyte glycoprotein), MAG (myelin-associated glycoprotein) and PLP (proteolipid protein) are used as peptide fragments of pathogenic autoantigens.

38. The use according to claim 36 or claim 37, wherein sheath proteins or membrane glycolipide complexes are used as specific antigenic components of pathogenic microorganisms.

39. Pharmaceutical preparation, comprising one inhibitor or of several inhibitors of alanyl aminopeptidases and/or of enzymes having a similar substrate specificity as well as one or several pharmacologically unobjectionable carrier, additive and/or auxiliary substance(s).

40. Pharmaceutical preparation, comprising one inhibitor or several inhibitors of alanyl aminopeptidases and/or of enzymes having a similar substrate specificity and peptide fragments of pathogenic autoantigens or synthetic analogs and/or specific antigenic components of pathogenic microorganisms as well as one or several pharmacologically unobjectionable carrier, additive and/or auxiliary substance(s).